Fair Values and Audit Fees: Evidence from Asset Revaluations in Australia

Abstract:

This paper examines the association between the level of audit fees paid and asset revaluations, one use of fair value accounting. This Australian study also investigates attributes of asset revaluations and the association with the level of audit fees paid. We find that firms choosing the revaluation model incur higher audit fees than those that chose the cost model; asset revaluations made by directors lead to the firm incurring higher audit fees than for those made by external independent appraisers; and revaluation of investment properties leads to lower audit fees. The findings suggest that asset revaluations can result in higher agency costs and audit fees vary with the reliability of the revaluations and the class of assets being revalued.

Key words: Asset revaluation; fair value; audit fees

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1. Introduction

This study examines one use of fair value accounting, the revaluation of assets, in financial statements and its association with the level of audit fees paid. As such, the results of this study may assist standard setters in their ongoing deliberations about the role of fair value reporting in general-purpose financial statements, as the results suggest that fair value reporting lead to an increase in the level of audit fees paid. The Schneider and Tran (2013) study of European IFRS banks financial statements provides evidence that audit fees increase with higher exposure to the number of categories of financial statements used by a bank, level three assets and liabilities and reclassifications of financial statements. The increase in audit fees is attributed to the complexity of these contexts and the lower reliability of level three assets

Asset revaluation refers to the process of remeasuring the book value of non-current assets to their fair market value. The practice of asset revaluations has been permitted and is commonly used in Australia, New Zealand, Belgium, Spain, France, Hong Kong, Italy, Japan, and the United Kingdom (UK). In the UK and Australia, firms can, but are not required to, revalue certain classes of long-lived assets. In addition, disclosure laws dating from at least 1961 in Australia have required details of valuations reported in financial statements if assets are carried at amounts other than cost. By contrast, in many countries such as the United States (US), upwards asset revaluations of fixed assets are not permitted under US GAAP (Aboody, Barth and Kasnik, 1999).

A substantial body of literature has explored the association between the use of fair value measurement in accounting and contracting costs involved with investors, debt holders and

regulators (Sharpe and Walker, 1975; Standish and Ung, 1982; Brown, Izan and Loh, 1992; Whittred and Chan, 1992; Easton, Eddey and Harris, 1993; Cotter and Zimmer, 1995; Aboody, Barth and Kasznik, 1999; Danbolt and Rees, 2008). The main purpose of this study is to investigate the effect of asset revaluation, one use of fair value accounting, and its attributes upon a major contracting cost, *audit fees*. Since the implementation of the International Financial Reporting Standards (IFRS), fair value accounting is often the mandated measurement base for many assets and liabilities, giving rise to many challenges for external auditors and auditing standard setters (Kumarasiri and Fisher, 2011), including to what extent are auditors technically prepared for the challenges presented by fair value accounting? While prior studies generally confirm that fair value accounting provides price-relevant information in financial statements, the trade-off between relevance and reliability of fair value measurements can pose significant risks for both preparers and auditors. Thus, the particular research questions in this study are: (1) Do asset revaluations increase (or decrease) audit fees? (2) Does the choice of appraisers, internal or external, affect the level of audit fees paid? (3) Do the attributes of asset revaluations, such as the features of the assets being revalued, affect audit fees? These research questions are considered to be timely and interesting to academics, practitioners and regulators.

The findings of this study indicates that there has been a significant increase in the audit fees paid associated with asset revaluations, implying that revaluation of assets can lead to additional audit work/review or agency costs. Furthermore, there are difficulties associated with the variation in techniques used to ascertain fair values across different industries and general complexities in ascertaining fair values by auditors, thus, assessing the fair value of

non-current assets increases the litigation risk of auditors. It would be expected that auditors would charge a fee premium to reflect the higher risk exposure. Additionally, this study finds that an independent valuer statistically weakens the positive association between the asset revaluations and external audit fees. This finding is consistent with the argument that external independent appraisers are more credible than internal directors, reducing the assessed level of audit review and auditor litigation risks. An alternative explanation rests on the expertise of the external appraisers. External valuers may provide inputs into the audit process. Auditors may rely on the findings of a specialist hired by management as appropriate audit evidence (Muller and Riedl, 2002; Goncharov, Riedl and Sellhorn, 2012). We also find that revaluations of property, plant and equipment (PPE) lead to higher audit fees than revaluations of investment properties (IP). The findings are consistent with the attributes of the revaluation in terms of classification of the asset and the nature of the valuer, external or internal. A battery of robustness checks have been conducted including (a) using alternative measures of audit fees, (b) employing a lag approach to mitigate the self-selection and endogenous issues, (c) excluding companies from the financial industry and (d) eliminating the effect of adoption of IFRS in 2005. These robustness checks provide consistent results.

This study contributes to both the fair value accounting and audit fees literatures as follows. First and foremost, this study extends the literature on the association between asset revaluations and contracting costs. Prior research has shown mixed evidence on investors' reactions to asset revaluations and demonstrates that asset revaluations do lead to less restrictive debt covenants, resulting in lower contracting costs and political costs (Brown et al., 1992; Whittred and Chan, 1992； Easton et al., 1993; Cotter and Zimmer, 1995). However, the

results are mixed. For example, Ettredge et al. (2011) found that audit fees increased as the proportion of fair valued assets increase in the US banking industry using a sample of bank holding companies during 2006-2008. On the other hand, using a sample of European real estate firms after IFRS adoption, Goncharov et al. (2012) provided evidence that audit fees are economically and statistically lower in firms reporting higher proportions of property assets at fair value. The evidence is mixed due to: (1) these studies examine different industries, (2) the evidence is entangled along with the financial crisis, (3) the asset at fair value is of a single type specific in an industrial sector and (4) institutional differences exist (e.g. different legal enforcement and different cultures).

This study is an attempt to fill this gap and differs from Ettredge et al. (2011) and Goncharov et al. (2012) by identifying a setting in which asset revaluations are an option of a firm and vary considerably by industries. Secondly, this study explores the attributes of asset revaluations in relation to the pricing of audit services which have only been investigated to a limited extent in prior studies. In doing so, this study will provide both managers and auditors with a cost-benefit view about asset revaluations. Previous studies indicate that using fair values reduce information asymmetries and improve decision making. However, the results of this study indicate that asset revaluations *increase* contracting costs (audit fees), suggesting that this salient characteristic of fair value reporting can weaken or even dominate the benefits.

The results from this study may also assist standard setters in their ongoing deliberations about the role of fair value reporting in general-purpose financial statements, as they suggest that fair value reporting can enhance both the decision and contracting usefulness of financial

statements but also increase the level of audit fees paid. In other words, fair value accounting can potentially foster the objectives of financial reporting but cause additional costs for firms. Finally, the debate on the use of fair value in accounting has been intense since the 2008 global financial crisis (Gartenberg and Serafeim, 2009; Laux and Leuz, 2010； Amel-Zadeh and Meeks, 2011). Critics argue that fair value accounting exacerbated the severity of the 2008 financial crisis. Using an Australian context, the empirical evidence provided by this study contributes to these arguments.

The paper is organised as follows. Section 2 outlines the institutional background of asset revaluation in Australia. Section 3 reviews the related literature. Section 4 develops the hypotheses of the study. Section 5 outlines the sample, specifies the regression model and the variables used in the model. Section 6 presents the analysis of the results. Section 7 summarises the robustness tests. Section 8 concludes and addresses limitations of the study.

2. Institutional Background

In Australia, the manager of a firm has discretion on the use of asset revaluation. Asset revaluation refers to the act of recognising a reassessment of the carrying amount of a non-current asset to its fair value as at a particular date. Prior to 2005, the accounting standard for revaluation of assets was AASB 1041 *Revaluation of Non-Current Assets*. Now there are three accounting standards, AASB 116 *Property, Plant and Equipmen*t, AASB 138 *Intangible Assets*, and AASB 140 *Investment Properties*.

i) Paragraph 29 of AASB 116 states:

An entity shall choose either the cost model in paragraph 30 or the revaluation model in

paragraph 31 as its accounting policy and shall apply that policy to an entire class of property, plant and equipment.

In terms of valuers, according to AASB 116, revaluations of non-current assets can be made on the basis of valuations made by directors or by independent valuers. Based on the guidance for revaluation above, managers are not indifferent to how and when they revalue their firm's assets.

ii) Regarding the subsequent measurement of intangible assets after initial recognition, AASB 138 *Intangible Assets* states:

"Either the cost model or revaluation model can be applied. However, the revaluation model can only be selected if fair values can be determined in an active market. AASB 138 notes that it is uncommon for an active market to exist for intangible assets. However, some jurisdictions may have an active market for freely transferable licences, which may provide a fair value for some intangible assets."

While most firms in Australia measure intangible assets using the cost model, a few firms choose the revaluation model.

iii) In accordance with AASB 140 *Investment Properties*, investment properties shall be measured after initial recognition using either i) the fair value model, with changes in fair value recognised in profit or loss in the period that they arise, or ii) the cost model, measured by depreciated cost less any accumulated impairment losses in accordance with AASB 116 *Property, Plant and Equipment*. In addition, this standard states that investment property measured at fair value does not have to be depreciated and determining the fair value of an investment property should be (but is not required to be) undertaken by an independent

valuer.

Overall, the principles of accounting for asset revaluations in Australia introduce substantial discretion into the revaluation process. For example, there is no specific requirement on the method of revaluation or of the nature of the valuer, although AASB 140 recommends an independent valuer for investment properties. Upwards asset revaluations are allowed despite the concern that estimates of current market prices can lead to biased values in financial reports (Walker, 1992). The discretion available under the Australian standards on asset revaluations provide a research opportunity which is not available in the US and other countries.

2. Literature Review

This study is related to two strands of literature: that examining the determinants of audit fees, and that examining the effects of asset revaluations, which is a part of fair value measurements.

3.1 Audit Fees Literature:

Audit fees represent a major agency or contracting cost (Jensen and Meckling 1976). Regarding the determinants of audit fees, much research focuses on the client attributes, auditor attributes, and engagement attributes (Simunic, 1980; Stice, 1991; Hackenbrack and Knechel, 1997; Hay et al., 2006; Carson, Simnett, Soo and Wright, 2012). For example, some research that examines auditor pricing reactions to client risk suggests that auditors respond to riskier clients by increasing audit fees since higher levels of inherent risk result in higher

levels of audit effort to reduce detection risk (Davis et al., 1993; Bell et al., 2001; Johnstone and Bedard, 2001, 2004). Other research finds that higher financial reporting quality of clients might reduce the audit fees as it reduces the potential litigation risks (Charles, Glover and Sharp, 2009; Lee et al., 2012). We follow the previous research in viewing audit fees as one of the contracting costs (or monitoring costs) arising from the agency problems of a firm and exploring the association between the choice of the asset revaluation model to these contracting costs.

3.2 Asset Revaluation Literature:

The impact of the accounting choice to revalue assets has been largely explored in relation to their contracting costs or economic consequences with the evidence mostly from Australia or the UK market (Standish and Ung, 1982; Easton et al., 1993; Brown et al., 1992). For example, several studies examine the information content of asset revaluations and document a positive stock market reaction to asset revaluations due to the reduced information asymmetry between managers and investors (Sharpe and Walker, 1975; Standish and Ung, 1982; Easton et al., 1993; Aboody et al., 1999; Danbolt and Rees, 2008). Other researchers explain that the asset revaluations are mainly shaped by incentives to improve the costly contracting process between a company and its claimholders. Specifically, Brown et al. (1992), Whittred and Chan (1992), Cotter and Zimmer (1995) use Australian data and find that leveraged companies in danger of violating covenants are more likely to revalue assets. In a survey of chief financial officers conducted by Easton et al. (1993), 40% of respondents explicitly indicated that revaluations are aimed at decreasing a company's leverage and

loosening debt constraints.

Following the debates on the use of fair value in accounting since the 2008 financial crisis (Laux and Leuz, 2010), a few studies have drawn attention to how fair value measurement affects another major contracting cost, audit fees, in the banking industry and other industries that were severely affected by the financial crisis. For example, Ettredge, Xu and Yi (2011) find that audit fees increase as the proportion of fair valued assets increase in the US banking industry using a sample of bank holding companies during 2006-2008. However, using a sample of European real estate firms after IFRS adoption, Goncharov et al. (2012) find that audit fees are economically and statistically lower in firms reporting a higher proportion of property assets at fair value. The more recent study of Schneider and Tran (2013) study of European IFRS banks financial statements provides evidence that audit fees increase with higher exposure to the number of categories of financial statements used by a bank, level three assets and liabilities and reclassifications of financial statements. The increase in audit fees is attributed to the complexity of these contexts and the lower reliability of level three assets

The evidence is mixed due to the fact that (1) these studies examine different industries; (2) the evidence is entangled along with the financial crisis; (3) the asset at fair value is of a single type specific in an industrial sector; and (4) institutional differences exist (e.g. different legal enforcement and different cultures).

3. Hypotheses Development

There are arguments on how the pricing of audit services is affected if the asset

revaluation model is adopted to measure assets at fair value. Critics maintain that the use of asset revaluations introduces higher contracting costs. For example, auditors spend more time in reviewing the reported figures and discussing them with directors. More record-keeping costs and additional audit costs might be charged because of the additional audit review needed (Brown et al., 1992; Loh and Tan, 2002; Missonier-Piera, 2007).

Another issue with asset revaluations rises from the reliability of the measurements of non-current assets. Revaluation of non-current assets is heavily reliant on the judgement of the appraisers, which may result in unintentional and intentional bias. For example, Benston (2008, p. 106) claimed that 'dishonest and opportunistic CFOs and CEOs are likely to find fair value accounting a boon to their efforts to manipulate reported net income.' Several empirical studies have evidenced deliberate managerial bias in fair value accounting (Dietrich, Harris and Muller, 2000; Hodder, Mayew, McAnally and Weaver, 2006; Danbolt and Rees, 2008; Ramanna, 2008). In addition, there are difficulties associated with the variation in techniques used to ascertain fair values across different industries and general complexities in ascertaining fair values by auditors (Martin, Rich and Wilks, 2006; Kumarasiri and Fisher, 2011). As a result, assessing the fair value of non-current assets increases the litigation risk of the auditor, thus a fee premium will be charged by those auditors (Simunic, 1980; Francis, 1984; Goodwin and Trotman, 1993).

Others researchers argue that asset revaluations reduce audit fees by allowing auditors to more clearly identify and easily ascertain the underlying asset economic value. For example, Dietrich et al. (2000) provide empirical evidence that fair value accounting is more reliable than historical cost accounting since asset revaluations serve as a way of presenting the

financial statements in a 'true and fair' way. Muller, Riedl and Sellhorn (2011) document that information asymmetry is reduced when fair values are disclosed. Many believe that fair value measurement would have led regulators and other financial statement users to address the financial difficulties of the company's earlier and thus greatly reduce the contracting costs (Barth, Beaver and Landsman, 1995).

According to the competing arguments, the first alternative hypotheses are as follows:

H_1 (a)*: There is a significant* ***positive*** *association between asset revaluations and audit fees.*

H_1 (b)*: There is a significant* ***negative*** *association between asset revaluations and audit fees.*

The independence of the appraiser will impact the reliability of asset revaluations which might also affect the contracting costs. The differences between internal and external valuers are related to both independence and expertise. External independent valuers are experienced and have more credibility in estimating asset values. Auditors may rely on the findings of a specialist hired by management as appropriate audit evidence (Muller and Riedl, 2002; Goncharov et al., 2012). However, inside directors in some circumstances may provide more reliable revaluations given their specific knowledge of the assets' use. For example, 'insiders' are better equipped to identify the benefits that will flow from continued use and subsequent disposal of certain assets (Cotter and Richardson, 2002). Thus, firms will be expected to select external valuers to estimate the values of certain classes of non-current assets when directors have less specific knowledge. The reliability of asset revaluations and the impact of appraiser independence may provide inputs into the audit process. It is thus hypothesised that

audit fees will be lower for firms who hire external valuers than for those firms of which the non-current assets are valued by the directors.

H_2: *Audit fees are lower for firms adopting asset revaluations appraised by external valuers than those of firms that use director valuations.*

The features of the asset class under revaluation also introduce potential complexity and uncertainty into the auditing process regarding classification, depreciation and valuer. First, the classification of property, plant and equipment (PPE) is more complex than that of investment properties. AASB 116 Property, Plant and Equipment defines a class of PPE as a grouping of assets with a similar nature including land, buildings, machinery, ships, aircraft motor vehicles, furniture and fittings and office equipment. The method and significant assumptions for revaluations should be applied within a given class. By contrast, an investment property is defined in AASB 140 as property (land, building or part of a building, or both). Second, subsequent accumulated depreciation should be estimated and deducted from a revalued amount of PPE at the date of revaluation and the method and significant assumptions for depreciation should be applied within a given class. Nevertheless, investment property measured at fair value does not have to be depreciated in accordance with AASB 140 Investment Properties. Third, AASB 140 recommends firms to use an independent valuer for revaluing investment properties whilst there is no such a prescription for PPE or intangible assets. AASB 140 paragraph 32 state:

> *"Determining the fair value of an investment property should be (but is not required to be) undertaken by an independent valuer who holds a recognised professional*

qualification and has had recent experience in the location and type of investment property being valued."

Hence, it is predicted that PPE revaluations lead to increased audit fees as compared to the audit fees for revaluations of investment property.

***H3**: Audit fees are more positively related to PPE revaluations than to investment property revaluations.*

5. Research Design

5.1 Data collection and sample description

Secondary data is used in this study. Specifically, the sample consists of ASX 300 listed firms for the five year sample period from 2003-2007. The above years have been chosen to observe any changes in the level of audit fees over the five year period due to environmental changes (e.g. adoption of International Financial Reporting Standards (IFRS) in 2005). For Australian companies that are subject to IFRS, 2005 represents a 'transition period' because of the time needed to understand the new regulation and consider the changes required. The years, 2003-2004, represent the period before the adoption of IFRS and as such these years constitute a 'pre-adoption period'. The years, 2006-2007, are considered as the 'post-adoption period'; thus these years are expected to capture the greater part of the IFRS impact on external audit fees. In selecting and comparing IFRS pre- and post-adoption years, it is expected that the above event would have some effect on the level of audit fees paid by Australian firms due to the transition to the new accounting standards. Also, 2008 has been excluded as companies were affected by the financial crisis.

The Australian top 300 companies were chosen based on the S&P/ASX 300 index, which is a market-capitalisation weighted and float-adjusted stock market index of Australian stocks listed on the Australian Securities Exchange from Standard & Poor's. The index incorporates all of the companies in the top 200, the S&P/ASX 200 index, and an additional 100 smaller companies, making a total of about 300 companies in the index. The companies in the index are reviewed quarterly by Standard & Poor's, and in this study, the ASX 300 companies were according to the company list as at 2011 when the asset revaluation data were collected. The reason why this study did not use the company list of the test periods is because the historical information (e.g. ASX 300 constitutes in 2005) was updated and was not publicly accessible once it has been updated. Thus, the 'Top 300' is in fact a slightly smaller number of firms in this study: 2003: 208; 2004: 221; 2005: 246; 2006: 252; 2007: 266 firms. Firstly, 61 observations have been eliminated because of missing audit fee data (2003: 18; 2004: 14; 2005: 12; 2006: 6; 2007: 11 firms). Secondly, a small number of companies are excluded because of missing values for either one or more variables (2003: 24; 2004: 24; 2005: 26; 2006: 28; 2007: 31 firms). Finally, outliers are excluded at the 1% value. For testing of the hypotheses, the final sample consists of 973 companies. Table 1 below outlines the sample selection procedures.

[Insert Table 1]

5.2 Research Model

The hypotheses will be tested by using an ordinary least squares (OLS) regression model, extending the traditional audit fee model (Simunic, 1980; Francis, 1984; Francis and Simon,

1987; Craswell and Francis, 1999) to incorporate the variables of interest to this study. The model that is used to test hypothesis one is as follow:

$$LogAuditfees=b_0+\boldsymbol{b_1 Revaluation_{it}}+b_2Size+b_3Debt+b_4Receivables+b_5Inventory+b_6ROA+b_7Big\ 4+b_8CGS+Year\_dummy+Industry\_dummy+e$$

In order to test hypothesis two, one interaction variable: $\boldsymbol{External_{it*}\ Revaluations_{it}}$ is introduced, which aims at capturing whether those companies that have revalued their non-current assets will incur a lower audit fees because of employing external independent valuers, as compared to those firms using director valuations.

$$LogAuditfees=b_0+b_1Revaluation_{it}+b_2\ \boldsymbol{External_{it*}\ Revaluations_{it}}+b_3Size+b_4Debt+b_5Receivables+b_6Inventory+b_7ROA+b_8Big4+b_9CGS+Year\_dummy+Industry\_dummy+e$$

5.3 Variables and Measurements

5.3.1 Dependent Variable

The dependent variable, audit fees, will be measured by the dollar amount disclosed in the annual report (Jubb et al., 1996; Bell, Landsman and Shackelford, 2001; Hay, Knechel and Ling, 2008). In addition, in order to improve the linear relationship with audit fees, the size measure is transformed by taking the natural logarithm of the raw data in this study (Hay et al., 2006, p. 169).

5.3.2 Explanatory Variables

Our main variables of interest are the adoption of asset revaluations and attributes of

asset revaluations shown as follows:

Asset Revaluations$_{it}$ is a dummy variable equal to 1 if the firm *i* revalues any assets such as PPE, intangible assets or investment properties in year t, and 0 otherwise;

External$_{it}$ is a dummy variable equal to 1 if firm *i* uses an external independent appraiser to assess the value of the non-current assets in year *t*, and 0 otherwise;

External$_{it*}$ ***Revaluations***$_{it}$ is an interaction of ***Asset Revaluations***$_{it}$ and ***External***$_{it}$;

PPE$_{it}$ is a dummy variable equal to 1 if the firm *i* revalues PPE in year t;

IP$_{it}$ is a dummy variable equal to 1 if the firm *i* revalues investment properties in year t;

5.3.3 Control Variables

In order to control for the firm-specific riskiness, we use seven variables to reflect factors/ risks that have been shown in prior research to be related to audit fees. Based on previous studies (Chan et al., 1993; Cameran, 2005), *size* is measured by the nature logarithm of total assets in this study. It is expected that audit fees are positively associated with auditee size. A number of researchers have suggested that audit fees are positively related to *inherent risk* because the audit engagement with riskier organisations will have a higher possibility of error (Simunic, 1980, Hay et al., 2006). Inventory and receivables are two areas cited as the most difficult to audit (Simunic, 1980). Two proxies for inherent risk that will be used in this study are inventory divided by total assets and receivables divided by total assets. It is predicted that there is a positive relationship between inventory ratio/ receivable ratio and external audit fees.

Client *profitability* is another measure of risk because, in general, the worse the performance of the client organisation, the more risk will be borne by auditors, thus the higher

the audit fee is expected to be (Simunic 1980). The variable that is used to measure performance in this study is the profitability ratio (ROA). It is expected that there will be a negative association between ROA and external audit fees. *Leverage* is included in this study as the measure, total liabilities divided by total assets. This study has predicted a positive relationship between leverage and external audit fees paid by companies.

The *Big Four* audit firms are regarded as having higher audit quality, and are expected to be able to earn higher audit fees as a result. We use a dummy variable to indicate a Big 4 firm audit. This study predicts a positive relationship between Big Four auditors and external audit fees. In addition, some industries are considered harder to audit, thus industry is another essential determination of audit fees (Simunic 1980; Anderson and Zeghal, 1994; Firth, 1985; Karim and Moizer, 1996). The industry dummy variable is included for monitoring the industry factor of the audit pricing model.

Corporate governance is another determination of audit fees as effective corporate governance leads to a more effective control environment of the organisation. To increase the credibility of the findings of this study from using individual governance characteristics in the models, this study uses a corporate governance index. This study employs a corporate governance index, based on previous literature. The scoring system is based on the Horwath Corporate Governance Reports (2004), in which the Australia's largest 250 companies were scored and rated according to their corporate governance structures and policies (Christensen, Kent and Goodwin, 2010).

Six individual control variables for the corporate governance are analysed to produce a corporate governance score in this study, including size of the board of directors, majority

of board independent, duality of the role of board chair and chief executive officer, presence of an audit committee, remuneration committee and nomination committee. These items are based on the *Principles of Good Corporate Governance and Best Practice Recommendations* (2010). Only size of the board of directors and board independence are continuous variables. The rest of the variables are dichotomous. The corporate governance index will be calculated as the total of corporate governance score divided by 6. This study has no prediction for a relationship between corporate governance and audit fees due to the mixed findings of prior literature.

6. Results

6.1 Descriptive Statistics

Table 2 shows descriptive statistics for all the variables in the model. Panel A shows the descriptive statistics for all continuous variables. The mean audit fees for companies in the sample is $AUD 2,047,496 ranging from a minimum of $AUD 8,450 to a maximum of $AUD 82 million. The descriptive statistics also show that the sample covers a wide range of companies, some very small (minimum of $AUD 1.25 million)[1], some relatively large (maximum of $AUD 306 billion). On average, the companies in the sample had receivables and inventories comprising 1% and 6% of their total assets respectively. Further, on average, companies in the sample had total liabilities of approximately 44% of their assets. In terms of the profitability of these companies, on average, the ROA ratio is -2%, which indicates that more than 50% of companies in the sample made an accounting loss.

[1] This study used S&P ASX 300 constitutes as at 2011. Some of the companies were small in size in 2003 and 2004. These firms grew larger in the later years. For example, BERKELEY RESOURCES LIMITED (BKY) had a total asset of AUD $125,020 in 2003 and this company had a total asset of AUD $32,032,803 in 2007.

Panel B shows that descriptive statistics for all dichotomous variables. Only 11.6% of the companies in the sample had revalued their non-current assets, which is a small proportion as compared to 88.4% of companies that applied the cost model to their non-current assets. 76.8% of the companies were audited by a Big 4 audit firms during the period from 2003-2007. In terms of corporate governance indicators, generally, companies in the sample appear to have a high level of corporate governance (mean of CGS=0.75). Specifically, board size is large enough to exercise their power diligently. However, board independence is not compromised by the size of the board. Three-quarters of the companies have a majority of independent directors on their boards and the duality of chair and CEO occurs at a comparatively smaller rate of 3%. In addition, the majority of companies have an audit committee (90.7%) and a remuneration committee (74%). Only half of the companies have a nomination committee (47.9%).

Within the companies that have revalued their non-current assets, 69.6% selected external valuers to estimate any one type of asset values. Panel C shows the valuer breakdowns. 28 companies used external valuers to assess the value of PPE. However, 77 (94%) of companies chose to use an external valuer to value their investment properties. This is consistent with the recommendation outlined in AASB 140 *Investment Property* (Paragraph 32) that companies should use external independent appraisers with particular expertise to assess the market value of investment properties.

[Insert Table 2]

Table 3 presents the description of asset revaluations by industries. The industry is classified based on the two-digit GICS code downloaded from Aspect Fin Analysis. The

assets that firms revalue include plant, property and equipment (PPE), intangible assets and investment properties.

The first column shows that 62 firms choose to revalue PPE. These firms are mostly in the Financials, Consumer Discretionary, Consumer Staples, Materials and Industrials industries. The second column shows that nine firms choose to revalue intangible assets. These firms are mostly in the Consumer Discretionary, Materials and Industrials industries. The third column shows that 76 firms choose to revalue investment properties. Interestingly, 69 companies in the Financial sector revalued their investment properties. The fourth column shows that there are a total of 147 firms that choose to revalue any one of the PPE, intangible assets and investment properties. Overall, those firms are mostly in the Financials, Consumer Discretionary, Materials and Industrials industries. Interestingly, no firms in the Energy, Telecommunication Services and Utilities industries have revalued their assets.

[Insert Table 3]

Table 4 compares the mean and standard deviation of all variables from two sub-samples: firms that choose the revaluation model (n=138) with those companies that choose the cost model (n=1055). When the means of the variables from the two sub-samples are compared, it is observed, firstly, total assets (*t-stat*=5.38), debt ratio (*t-stat*=3.92), ROA (*t-stat*=3.40) and CGS (*t-stat*=4.88) of firms that choose the revaluation model are significantly higher than those of firms that choose the cost model. This result is consistent with the argument that asset revaluations can potentially reduce the profits of companies wishing to avoid political costs. This result is also consistent with earlier studies where larger firms and more profitable

companies were found to be more likely to undertake asset revaluations. Secondly, the inventory ratio of firms that have used the revaluation model are higher as compared to firms that used the cost model; however, the differences are not statistically significant (*t-stat*=1.29). Finally, there is no difference between the level of receivables of the two sub-samples.

[Insert Table 4]

6.2 Univariate tests

6.2.1 Revaluation Models

Hypothesis one predicts alternatively that external audit fees will be either increasing or decreasing with asset revaluations. Categorisation on the revaluation model used resulted in 136 firms being regarded as 'Revaluation Model' and 996 firms as 'Cost Model'. Table 5 summarises the results of the univariate tests of this hypothesis. The results support hypothesis 1(a), that audit fees are significantly higher for those firms that used the revaluation model as compared to those firms that used the cost model. Table 5 reveals that the difference between the two groups is significant in both the independent t-test (p=0.000) and the U-test (p=0.000).

[Insert Table 5]

6.2.2 Valuers

Hypothesis two predicts that audit fees are lower for firms adopting asset revaluations appraised by external valuers than those of firms that use a directors' valuation.

Categorisation on asset revaluation appraisers resulted in 95 firms being regarded as 'External Appraiser' and 41 firms as 'Director Valuation'. Table 6 summarises the results of the univariate tests of this hypothesis. The results support hypothesis 2, that audit fees are significantly lower for those firms that used external appraisers as compared to those firms using director valuation. Table 6 reveals that the difference between the two groups is significant in both the independent t-test (p=0.000) and the U-test (p=0.000).

[Insert Table 6]

6.2.3 Asset Types

Hypothesis three predicts that audit fees are more positively related to PPE revaluations than to investment property revaluations. Tables 7 and 8 summarise the results of the univariate tests of hypothesis three. The results support hypothesis 3, that audit fees are significantly higher for those firms that revalued their property, plant and equipment, as compared to those firms that revalued their investment properties. Tables 7 and 8 reveal that the difference between the two groups is significant in both the independent t-test (p=0.000) and the U-test (p=0.000).

[Insert Tables 7 and 8]

Table 9 provides the correlation matrix for each of the variables in the regression model. The audit fee variable is significantly related to Revaluation, External Valuation, Size, Inventory ratio, Receivables ratio, Debt ratio, Big 4 and CGS. The Big 4 is significantly correlated with Size, Receivables ratio, Inventory ratio, Debt ratio, ROA and CGS, which is consistent with the prediction that companies with higher inherent risk and of a larger size

will tend to use high reputation audit firms (Big 4). As a result, the litigation risk of these companies will be reduced. However, from the perspective of auditors, their litigation risk will increase as they are going to be auditing more risky assets, such as receivables and inventories. Thus, auditors will charge an audit fee premium to those clients, which are illustrated by a significant positive correlation between audit fees and Big 4.

[Insert Table 9]

6.3 Regression Results

6.3.1 Effect of adopting revaluation models on audit fees

The OLS regression results are reported in Table 10. Hypotheses one predicts alternatively that asset revaluations are associated with a higher audit fee ($H1_a$) or a lower audit fee ($H1_b$). The dependant variable is the audit fee. ***Revaluation$_{it}$*** is a dummy variable equal to 1 if a firm chooses to revalue ***any*** of its non-current assets (e.g. PPE, intangible assets or investment properties). In Column (1), the results from a base model (excluding all control variables) are reported, supplemented with the experimental variables (asset revaluations) in Columns (2). Referring to the base model in Column (1), audit fees are found to be significantly increasing with asset revaluations (coefficient=0.241, *t*-stat = 8.344).

Introducing the experimental variable in Column (2), the result shows that the audit fees are positively associated with asset revaluations (coefficient =0.060, *t*-stat = 2.365) and are significant at the 5% level (p=0.018). Therefore, hypothesis 1(a) is supported. This finding is consistent with the argument that revaluation of assets can lead to additional audit work. Furthermore, there are difficulties associated with the variation in techniques used to ascertain fair values across different industries and general complexities in ascertaining fair values by

auditors, thus, assessing fair value of non-current assets increases the litigation risk of auditors. The auditors would charge a fee premium to reflect the higher risk that they are exposed to. Further, the sign of the coefficients of the control variables Size, Receivables, Inventory, ROA, Debt and Big 4 are consistent with expectations (e.g., Simunic, 1980; Taylor and Baker, 1981; Francis, 1984; Firth, 1985; Palmorose, 1986; Chan, Ezamel and Gwilliam, 1993; Gonthier-Besacier and Schatt, 2006 Liu, 2007). The results also show that there is a complementary association between external auditors and internal corporate governance mechanisms (coefficient=0.132, *t*-stat=5.228), which is consistent with previous studies in the corporate governance literature (Goodwin and Kent, 2006; Hay, Knechel and Ling, 2008).

[Insert Table 10]

6.3.2 Effect of reliability of asset revaluations on audit fees

In order to test hypothesis two, one interaction variable: $\boldsymbol{External_{it*}\ Revaluations_{it}}$ is introduced, which aims at capturing whether those companies that have revalued their non-current assets will incur a lower audit fees because of employing external independent valuers, as compared to those firms that used directors' valuations. The results are presented in Table 10.

The results displayed in Table 11 indicate that companies that selected the external independent appraisers incurred a lower external audit fees (coefficient=-0.161, *t*-stat=-5.587) which is statistically significant at the 1% level (p=0.000). The notion behind this finding is consistent with the argument that external appraisers are more independent than internal directors, which will certainly reduce the assessed level of audit review and auditor litigation

risks. One alternative explanation rests on the expertise of the external appraisers. External valuers may provide inputs into the audit process. Auditors may rely on the findings of a specialist hired by management as appropriate audit evidence (Muller and Riedl, 2002; Goncharov et al., 2012). Thus, the audit fees are expected to be lower if external appraisers are used.

[Insert Table 11]

6.2.3 Effect of classification of asset revalued on audit fees[2]

Table 12 shows that the companies that had revalued their property, plant and equipment occurred generally higher audit fees (coefficient=0.070, *t*-stat=3.244), while those companies that revalued their investment properties had a statistically lower audit fees (coefficient=-0.060, *t*-stat=-2.547). This finding is consistent with the prediction that the features of asset under revaluations can also introduce potential complexity and uncertainty into the auditing process regarding classification, depreciation and choice of valuer. First, the classification of property, plant and equipment (PPE) is more complex than that of investment properties. Second, subsequent accumulated depreciation should be estimated and deducted from a revalued amount of PPE at the date of revaluation. And the method and significant assumptions for depreciation should be applied within a given class. Nevertheless, investment properties measured at fair value do not have to be depreciated in accordance with AASB 140 Investment Properties. Third, AASB 140 recommends firms to use an independent valuer for revaluing investment properties whilst there is no such prescription for PPE or intangible

[2] Due to the small sample size of revaluation of intangible assets (N=9), intangible assets are excluded from the analysis of hypothesis 3.

assets. As noticed in the earlier section, 94 % of investment properties were valued by external independent appraisers with expertise, this finding is somewhat indirectly supporting our hypothesis two, that is, employing external valuers can potentially reduce the external audit fees.

[Insert Table 12]

7. Robustness:

7.1 Alternative measures of audit fees

(a) Using the Log of the Sum of Disclosed Auditor Remuneration

Seetharaman, Gul and Lynn (2002, p.107) state that "…*The distinction between audit work and non-audit work may sometimes be arbitrary, especially given that U.K. company law allows considerable variety in the manner in which non-audit service fees are incurred and disclosed*'. In Australia, Australian Accounting Standards Board (AASB) 101 *Presentation of Financial Statements* and company law have almost the same mandatory requirements for disclosures of auditor's remunerations. Previous studies have shown that knowledge spillovers were found relating to the provision of non-audit services (Simunic, 1984; Palmrose, 1986). Cost savings may be achieved by clients either through a lower audit fee or through lower non-audit fees. As a result, it is expected that occasionally higher audit fees may be offset by lower non-audit fees, or vice versa (Seetharaman et al., 2002). For example, supplying audit services might enable the firm to better identify consulting opportunities. Or, providing non-audit services could make auditors more familiar with client

systems, leading to lower audit fees. Alternatively, delivering audit services could certainly reduce the pricing of providing non-audit services to an audit client.

Accordingly, regressions are re-estimated by using the logarithm of the sum of disclosed auditor remuneration, including both audit fees and non-audit services, as the dependent variable. The results are robust with respect to this alternative specification of the dependent variable. The coefficients for $Revaluation_{it}$, $External_{it*}$ $Revaluations_{it}$, PPE_{it} and IP_{it}, are all significant at either 1% or 5% level.

(b) Adding Non-Audit Fees as a Control Variable

Alternatively, instead of using auditor's total remuneration as the dependent variable, regressions are re-estimated by adding non-audit fees as a control variable. The results are robust. The coefficients for $Revaluation_{it}$, $External_{it*}$ $Revaluations_{it}$, PPE_{it} and IP_{it}, are all significant at either 1% or 5% level.

7.2 Endogeneity issue

The observed association between asset revaluations and audit fees may be caused by omitted variables. For example, a firm in financial distress that incurred more audit costs is more likely to choose asset revaluations to package the value of assets. We employ a lag approach to deal with these self-selection issues by regressing the audit fee in year t on the asset revaluations in year t-1. We find the asset revaluations of the lagged period are consistently positively associated with audit fees (coefficient=0.047 and p = 0.061).

7.3 Excluding Companies from the Financial Sector

A common assertion made by auditors and researchers is that some industries are more difficult to audit than others (Simunic, 1980). For example, financial institutions have relatively large assets, but are generally easier to audit than companies with extensive inventory, receivables, or knowledge-based assets (Hay et al., 2006).

The companies from the financial sector have been singled out in the sensitivity tests, resulting in a sub-sample with 927 firm-year observations. Results show that the results remain consistent with the previous findings that audit fees are increasing in asset revaluations (coefficient=0.065, *t*-stat=3.439) and the result is statistically significant at 1% level (p=0.000). Also, the result shows that employing external appraisers certainly reduces the external audit fees (coefficient=-0.129, *t*-stat=-4.829) and the result is statistically significant at the 1% level (p=0.000).

7.4 Effect of adoption of IFRS in 2005

Prior literature provides evidence of audit fees being positively associated with International Financial Reporting Standards (IFRS) adoption because there is a transition period where companies are preparing financial reports in accordance with IFRS instead of applying previous domestic standards. Marden and Brackney (2009) suggest that, in order to make the most appropriate judgments and to ensure adequate compliance, accountants must spend more time and efforts on analysing business transactions under IFRS. In addition, accounting firms are expected to make more investment in resources to enhance audit quality in response to the implementation of new standards, leading to higher audit fees charged by audit firms. On the other hand, principles-based accounting standards can lead to judgments

of accountants that are vulnerable to challenge. For instance, the litigation risk faced by accountants will be higher when their clients mismanage their business (Love and Eickemeyer, 2009). As Hey et al. (2006) suggest, one of the factors determining audit fees is litigation risk. Thus, it is expected that a higher audit premium will be charged by accounting firms to compensate for the increased litigation risk.

Additionally, the transition to accounting standards under an IFRS regime has increased the level of audit complexity as several revisions have been made on previous Australian accounting standards. For example, there is a wider application of fair value accounting under IFRS, which results in more subjective estimates and valuations from financial reports preparers. Because of the considerable changes in accounting rules in a short transition period, it is expected that misreporting becomes more likely. Hence, the overall auditor litigation risk becomes higher. Moreover, the mandatory re-classification and revaluation also increase the degree of audit complexity. As a result, audit firms will charge a higher audit premium to compensate for the additional audit costs incurred after the adoption of IFRS in Australia.

Accordingly, sensitivity tests explore the ‘net effect’ of asset revaluations rather than the adoption of IFRS on audit fees. All hypotheses are re-tested by excluding the companies in 2005 (IFRS adoption year) to avoid capturing the increased audit effort due to the implementation of a new accounting framework. After excluding the companies in 2005, the result consistently shows that there is a significant positive association between asset revaluations and audit fees (coefficient=0.037, *t-stat*=2.696) and external valuation statistically reduces the external audit fees (coefficient=-0.165, *t-stat*=-4.840). Results are statistically significant at the 1% level.

8. Summary and Conclusion

The purpose of this study is to investigate the effect of asset revaluations and its attributes upon audit fees in the Australian context. Using a sample of 300 ASX listed companies from the period of 2003-2007, we find that there is a significant and positive association between asset revaluations and audit fees. In addition, companies employing an independent appraiser to estimate the asset values incurred a significant lower cost of audit fees as compared to those companies using internal directors' valuations. In contrast to investment property revaluations, PPE revaluations incurred more audit fees. Several sensitivity tests are conducted and the main findings remain unchanged.

The results of this study have important implications to standard setters on both fair value accounting and audit services. While the use of fair value accounting increases "true and fair" disclosure, it may also increase reviewing costs on value estimation and litigation costs to auditors. In addition, reliability of revaluations and the attributes of assets being revalued may introduce/reduce costs incurred in the auditing process.

This study has some limitations. For example, we only focus on ASX 300 firms which are larger and have better performance than smaller firms. As such, there is a concern about the relatively small sample of firms which choose asset revaluations (N=138). In addition, the empirical results in the study are limited to the Australian market. The results of this study might not be generalisable to other countries as country-differences exist. Future research can explore other attributes of asset revaluation upon audit pricing.

Appendix 1: Measurement of Variables

Variable	Measurement
Audit fees	Natural log of external audit fees
Revaluations$_{it}$	Dummy variable equal to 1 if the firm *i* revalues assets such as PPE, intangible assets or investment properties in year t
PPE$_{it}$	Dummy variable equal to 1 if the firm *i* revalues PPE in year t
IP$_{it}$	Dummy variable equal to 1 if the firm *i* revalues investment properties in year t
External$_{it}$* Revaluations$_{it}$	Dummy variable equal to 1 if firm *i* uses external independent appraisers to assess the value of the non-current assets in year *t*, and 0 otherwise.
Size	Natural log of total assets
Debt	Ratio of total liabilities to total assets
Receivables	Ratio of receivables to total assets
Inventory	Ratio of inventory to total assets
ROA	Return on assets (earnings before interest and tax divided by total assets)
Big4	Dummy variable given the value 1 when a Big 4 auditor is used and 0 otherwise
Industry_dummy	Dummy variable equal to 1 if the firm is in the Financial sector, and 0 otherwise.
Year_dummy	Dummy variable equal to 1 if the firm is in the IFRS post-adoption period, and 0 otherwise.
Corporate Governance Score	*A*verage of 6 individual corporate governance variables

Appendix 2: Components of Corporate Governance Index (ASX Principles of Good Corporate Governance and Best Practice Recommendations 2010)

	Recommendation
Structure the board to add value	
Companies should have a board of an effective composition, size and commitment to adequately discharge its responsibilities and duties. ✓ **Board Size** ✓ **Board Independence**: A majority of the board should be independent directors. ✓ **Duality**: The roles of chair and chief executive officer should not be exercised by the same individual.	 2.1 2.3
Existence of committees	
✓ **Audit Committee:** The board should establish an audit committee. ✓ **Nomination Committee:** The board should establish a nomination committee. ✓ **Remuneration Committee:** The board should establish a remuneration committee.	4.1 2.4 8.1

Appendix 3: Variables for Constructing the Corporate Governance Score

	Corporate Governance Characteristic	Details	Score	Details	Score
1	Size of the board of directors	>5	1	=<5	0
2	Majority of board independent	>0.5	1	=<0.5	0
3	Duality of the role of board chair and chief executive officer	No	1	Yes	0
4	Presence of an audit committee	Yes	1	No	0
5	Presence of a remuneration committee	Yes	1	No	0
6	Presence of a nomination committee	Yes	1	No	0

Corporate Governance Score (CGS) = the average of 6 individual corporate governance characteristics

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Table 1
Sample selection procedures

	2003	2004	2005	2006	2007	Total
Original observations	208	221	246	252	266	1193
Less:						
1. Missing audit fee data	18	14	12	6	11	61
2. Missing financial data	24	24	26	28	31	133
3. 1% top and bottom extreme values/ outliers	26					
Final Sample	973					

Table 2
Descriptive Statistics for Regression Variables

Panel A:Continuous Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Audit Fees ($000s)	1132	8.45	82000.00	2047.50	8662.10
Total Assets ($M)	1169	1.25	305995.00	8923.58	38797.20
Debt	1193	0.01	1.43	0.44	0.27
Receivables	1062	0.00	0.43	0.01	0.04
Inventory	1048	0.00	0.54	0.06	0.10
ROA	1193	-1.44	0.33	-0.02	0.28
CGS	1170	0.17	1.00	0.75	0.24

Panel B: Dichotomous Variables

Variable:	*N*	*Yes*	*%*	*No*	*%*
Fair-value Model	1193	138	11.6	1055	88.4
Director Valuation	138	42	30.4	96	69.6
Big 4	1141	916	76.8	225	18.9
Board Size>5	1093	701	58.8	492	41.2
Board Independence > .5	1171	887	74.4	284	23.8
CEO/Chairperson duality	1193	36	3.0	1157	97.0
Existence of an audit committee	1193	1082	90.7	111	9.3
Existence of a remuneration committee	1193	883	74.0	310	26.0
Existence of a nomination committee	1193	572	47.9	621	52.1

Panel C: Valuer Breakdowns

Asset type:	External appraiser	Director Valuation
Property,plant and equipment	28	34
Intangible assets	3	6
Investment property	77	5

In Panel A, Audit fees are measured in thousands and total assets are measured in millions. The debt ratio is defined as total liabilities divided by total assets. The receivable ratio is defined as total receivables over total assets. The inventory ratio is defined as total inventory divided by total assets. ROA is equal to earnings before interest and tax (EBIT) divided by total assets. Panel B describes the variables used to construct the corporate governance score. Panel C provides the valuer breakdowns by asset types.

Table 3

Sample Companies by Industries using the Two-digit GICS Code

			Revaluation of assets			
2-digit GICS	Industry	N	PPE(1)	Intangible Assets(2)	Investment Property(3)	All Assets(4)
10	Energy	119	0	0	0	0
15	Materials	303	7	3	2	12
20	Industrials	184	7	4	2	13
25	Consumer Discretionary	128	11	2	3	16
30	Consumer Staples	43	8	0	0	8
35	Health Care	63	3	0	0	3
40	Financials	172	24	0	69	93
45	Information Technology	21	2	0	0	2
50	Telecommunication Services	25	0	0	0	0
55	Utilities	34	0	0	0	0
Total		**1092**	**62**	**9**	**76**	**147**

Table 3 describes asset revaluation across industries based on the two-digit GICS code. The assets that firm revalues include PPE, intangible assets and investment properties.

Table 4

Descriptive Statistics (Independent T-Test)

	Fair-value Model N=138		**Cost Model N=1055**			
	Mean	SD	Mean	SD	Mean Difference	T-stat
Total Assets ($M)	25427.36	70769.07	6714.54	31612.79	18712.82	5.38*
Receivables	0.01	0.02	0.01	0.04	0.00	-0.34
Inventory	0.07	0.07	0.06	0.10	0.01	1.29
Debt	0.52	0.22	0.43	0.28	0.09	3.92*
ROA	0.06	0.05	-0.03	0.30	0.09	3.40*
CGS	0.85	0.18	0.74	0.25	0.11	4.88*

Table 4 presents the mean and median of all variables in a sub-sample of firms that chooses the revaluation model and a sub-sample of firms that chooses the cost model. The debt ratio is defined as total liabilities divided by total assets. The receivable ratio is defined as total receivables divided by total assets. The inventory ratio is defined as total inventory divided by total assets. ROA is equal to earnings before interest and tax (EBIT) divided by total assets. CGS is an average of 6 individual corporate governance variables. **=significant at the 5% level (two-tailed test),*=significant at the 10% level (two-tailed test).

Table 5
Revaluation Models (cost model versus revaluation model) for Firms in Relation to External Audit Fees

Dependent Variable	Revaluation Model			
	Cost model	*Revaluation model*		
	n Mean (Std Dev)	*n* Mean (Std Dev)	*Significance*	
			T-test	*U-test*
External audit fees	996 5.38 (0.80)	136 5.98 (0.68)	8.344	38662.00
*Two-tailed probabilities			(0.000)*	(0.000)*

Table 6
Appraisers (external appraisers versus director valuation) of Firms in Relation to External Audit Fees

Dependent Variable	Appraiser			
	External appraiser	*Director valuation*		
	n Mean (Std Dev)	*n* Mean (Std Dev)	*Significance*	
			T-test	*U-test*
External audit fees	95 5.72 (0.59)	41 6.58 (0.47)	-8.920	38662.00
* Two-tailed probabilities			(0.000)*	(0.000)*

Table 7
Effects of Revaluation of PPEs on External Audit Fees

Dependent Variable	Property, Plant and Equipment			
	Cost Model	*Revaluation model*		
	n Mean (Std Dev)	*n* Mean (Std Dev)	*Significance*	
			T-test	*U-test*
External audit fees	809 5.44 (0.79)	61 6.23 (0.63)	9.344	10645.50
* Two-tailed probabilities			(0.000)*	(0.000)*

Table 8
Effects of Revaluation of Investment Properties on External Audit Fees

Dependent Variable	Investment Property			
	Cost model	*Revaluation model*		
	n Mean (Std Dev)	*n* Mean (Std Dev)	*Significance*	
			T-test	*U-test*
External audit fees	775 5.41 (0.79)	80 5.88 (0.69)	5.106	20380.50
* Two-tailed probabilities			(0.000)*	(0.000)*

Table 9
Correlation Matrix between Variables

Variable	Audit Fees	Revaluation	Valuer	Size	Receivables	Inventory	ROA	Debt	Big 4	GCS
Audit Fees	1									
Revaluation	.241**	1								
Valuer	.101**	.818**	1							
Size	.791**	.276**	.177**	1						
Receivables	.070*	-.006	-.019	.029	1					
Inventory	.241**	.030	.007	.175**	-.029	1				
ROA	.292**	.098**	.081**	.451**	.037	.209**	1			
Debt	.457**	.113**	.047	.593**	.103**	.240**	.199**	1		
Big 4	.517**	.149**	.109**	.545**	.096**	.186**	.303**	.292**	1	
GCS	.609**	.141**	.073*	.593**	.024	.239**	.259**	.353**	.480**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Audit fees = natural log of external audit fees; *Revaluation*= dummy variable equal to 1 if firm I revalues any of its non-current assets in year t; *Valuer*= Dummy variable equal to 1 if firm *i* uses the external independent appraisers to assess the value of the non-current assets in year *t*, and 0 otherwise; *Size* = natural log of total assets; *Receivables* = ratio of receivables to total assets; *Inventory* = ratio of inventory to total assets; *ROA* = return on assets (earnings before interest and tax divided by total assets); *Debt* = ratio of total liabilities to total assets; *Big 4* = a dummy variable given the value 1 when a Big 4 auditor is used and 0 otherwise. *CGS*= self-constructed corporate governance score.

Table 10
Results from Regression of Audit Fees on Asset Revaluations

$LogAuditfees = b_0 + \mathbf{b_1 Revaluation_{it}} + b_2 Size + b_3 Debt + b_4 Receivables + b_5 Inventory + b_6 ROA + b_7 Big\ 4 + b_8 CGS + Year\_dummy + Industry\_dummy + e$

Variable	Predicted Sign	Colum (1) Base Model		Colum (2) Revaluation Model	
		Coefficient	t-stat	Coefficient	t-stat
Intercept		5.382	216.551*	0.495	2.983**
Revaluation$_{it}$	+/-	0.241	8.344*	0.060	2.365**
Size	+			0.663	21.804*
Debt	+			0.044	1.877
Receivables	+			0.040	2.200**
Inventory	+			0.052	2.797*
ROA	-			-0.085	-3.843*
Big 4	+			0.087	3.869*
CGS	+/-			0.132	5.228*
Year Dummy	?			Included	
Industry Dummy	?			Included	
Adjusted R^2		**5.7%**		**68.7%**	
N		**1131**		**973**	

Audit fees = natural log of external audit fees; *Revaluation*= dummy variable equal to 1 if firm I revalues any of its non-current assets in year t; *Size* = natural log of total assets; *Debt* = ratio of total liabilities to total assets; *Receivables* = ratio of receivables to total assets; *Inventory* = ratio of inventory to total assets; *ROA* = return on assets (earnings before interest and tax divided by total assets); *Big4* = a dummy variable given the value 1 when a Big 4 auditor is used and 0 otherwise. *CGS*= self-constructed corporate governance score. Industry_Dummy = a dummy variable equal to 1 if the firm is in the Financials, and 0 otherwise. **=significant at the 5% level (two-tailed test),*=significant at the 0.10 level (two-tailed test).

Table 11
Results from Regression of Audit Fees on External Valuation

$LogAuditfees = b_0 + b_1 Revaluation_{it} + b_2\ \boldsymbol{External_{it*}\ Revaluations_{it}} + b_3 size + b_4 debt + b_5 receivables + b_6 inventory + b_7 roa + b_8 big4 + b_9 CGS + Year\_dummy + Industry\_dummy + e$

Variable	**Predicted Sign**	**Colum (1) Base Model**		**Colum (2) Revaluation Model**	
		Coefficient	***t*-stat**	**Coefficient**	***t-stat***
Intercept		5.382	219.773*	0.489	2.993*
$Revaluation_{it}$	+/-	0.481	9.695*	0.169	5.844*
$\boldsymbol{External_{it*}\ Revaluations_{it}}$	-	-0.293	-5.906*	-0.161	-5.587*
Size	+			0.666	22.240*
Debt	+			0.049	2.098**
Receivables	+			0.050	2.772*
Inventory	+			0.074	3.658*
ROA	-			-0.084	-3.877*
Big 4	+			0.084	3.780*
CGS	+/-			0.125	5.026*
Year Dummy	?			Included	
Industry Dummy	?			Included	
Adjusted R^2		**8.5%**		**69.7%**	
N		**1131**		**973**	

Audit fees = natural log of external audit fees; *Revaluation*= dummy variable equal to 1 if firm I revalues any of its non-current assets in year t; $External_{it*}$ $Revaluations_{it}$ = Dummy variable equal to 1 if firm *i* uses external independent appraisers to assess the value of the non-current assets in year *t*, and 0 otherwise;*Size* = natural log of total assets; *Debt* = ratio of total liabilities to total assets; *Receivables* = ratio of receivables to total assets; *Inventory* = ratio of inventory to total assets; *ROA* = return on assets (earnings before interest and tax divided by total assets); *Big4* = a dummy variable given the value 1 when a Big 4 auditor is used and 0 otherwise. *CGS*= self-constructed corporate governance score. Industry_Dummy = a dummy variable equal to 1 if the firm is in the Financials, and 0 otherwise. **=significant at the 5% level (two-tailed test),*=significant at the 0.10 level (two-tailed test).

Table 12
Results from Regression of Audit Fees on Two Types of Non-current Assets

$LogAuditfees = b_0 + \mathbf{b_1 PPE_{it}/orIP_{it}} + b_2 Size + b_3 Debt + b_4 Receivables + b_5 Inventory + b_6 ROA + b_7 Big\ 4 + b_8 CGS + Year\_dummy + Industry\_dummy + e$

Variable	Predicted Sign	Column(1): PPE Coefficient	*t-stat*	Column(2) : Investment property Coefficient	*t-stat*
Intercept		0.571	2.934*	0.521	2.622*
$PPE_{it}/orIP_{it}$	+/-	0.070	3.244*	-0.060	-2.547*
Size	+	0.632	18.270*	0.654	18.155*
Debt	+	0.030	1.035	0.041	1.413
Receivables	+	0.043	2.015**	0.046	2.119**
Inventory	+	0.069	2.943**	0.071	2.944*
ROA	-	-0.088	-3.465*	-0.092	-3.523*
Big 4	+	0.097	3.809*	0.089	3.399*
CGS	+/-	0.147	5.164*	0.142	4.867*
Year_Dummy	?	Included		Included	
Industry_Dummy	?	Included		Included	
Adjusted R^2		**66.6%**		**66.5%**	
N		**789**		**757**	

Audit fees = natural log of external audit fees; PPE_{it}= Dummy variable equal to 1 if the firm *i* revalues PPE in year t; IP_{it}= Dummy variable equal to 1 if the firm *i* revalues investment properties in year t; *Size* = natural log of total assets; *Debt* = ratio of total liabilities to total assets; *Receivables* = ratio of receivables to total assets; *Inventory* = ratio of inventory to total assets; *ROA* = return on assets (earnings before interest and tax divided by total assets); *Big 4* = a dummy variable given the value 1 when a Big 4 auditor is used and 0 otherwise. *CGS*= self-constructed corporate governance score. *Industry_Dummy* = a dummy variable equal to 1 if the firm is in the Financial sector, and 0 otherwise. *Year_Dummy*= a dummy variable equal to 1 if the firm is in the IFRS Post-adoption period, and 0 otherwise.

**=significant at the 5% level (two-tailed test),*=significant at the 0.10 level (two-tailed test).